REVIEW OF
"LUNG CANCER IN NONSMOKING WOMEN: A MULTICENTER CASE-CONTROL STUDY"

Fontham, Correa, Wu-Williams, Reynolds, R. Greenberg, Buffler, Chan, Boyd, Alterman, Austin, Liff and D. Greenberg

Cancer Epidemiology, Biomarkers and Prevention, 1, 35-45, 1991.

SUMMARY

* The Fontham study is the largest case-control study of lifetime nonsmokers and lung cancer reported to date in the scientific literature, involving 431 nonsmoking cases and 794 population controls.

* The authors state that the study was designed specifically to address some of the methodological faults of previous studies of ETS and lung cancer, including inadequate attention to confounding factors and misclassification of smoking status and inadequate confirmation of lung cancer diagnosis.

* The authors claim that the study provides the strongest available evidence that ETS increases the risk for lung cancer in nonsmokers.

MAJOR FINDINGS

* The study reports a statistically significant relative risk for adenocarcinoma of 1.47 based on spousal smoke exposure.

* The study reports a statistically significant dose-response trend for adenocarcinoma based on spousal smoking, noting increased risk with increased exposure.

* ETS exposure in the workplace and social settings also is addressed. The authors report a statistically significant 40 to 60 percent increase in adenocarcinoma risk with ETS exposure in both settings.

* No significant association is reported between exposure to ETS in childhood and risk of lung cancer.

* No significant association is reported for all cell types examined based on spousal smoking.

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MAJOR CRITICISMS

* The current study reports data from only the first three years of a five year study. The data also are incomplete in a number of areas: urinary cotinine analyses to rule out misclassification of smoking status are not complete, nor are histopathologic diagnoses of lung cancer status.

* Data on potential confounding factors -- including occupation, diet and family medical history -- have not been incorporated into the analyses reported, even though the authors acknowledge that the data were collected. Thus, although the study may have been designed to correct for this serious methodological problem, the problem still exists in the current analyses.

* The authors report a statistically significant lung cancer risk only for adenocarcinoma. This finding is inconsistent with other studies of ETS and lung cancer, which generally have not demonstrated significant increased risk for this cancer form.

* The authors report consistent dose-response data only for spousal smoking exposure. For workplace and social exposures, dose-response trends are not consistent: risk first increases with increased exposure, then declines in the highest exposure category.

* Despite the authors' claims, misclassification of smoking status has not adequately been taken into account. Among other problems, approximately 30 percent of case interviews were coducted with next of kin rather than with cases themselves.

EFFECT OF THE STUDY ON META ANALYSIS

* Inclusion of the Fontaham study has little effect on meta analysis of all studies of ETS and lung cancer.

* Meta analysis of U.S. studies, based on unadjusted data, becomes statistically significant with inclusion of the new study.

* Inclusion of the new study in meta analysis of workplace exposure studies increases the relative risk from 0.98 to 1.02, but does not produce statistically significant results.

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